

Serial No. 10/516,084  
Atty. Doc. No. 2002P07513WOUS

In the claims:

1-37 (cancelled).

38. (currently amended) An assembly comprising:

a ceramic heat shield deemed acceptable only in the absence of any crack propagating from an edge of the heat shield toward a center of the heat shield to a critical location of the heat shield, the heat shield deemed acceptable with cracks not extending to the critical location, a length of a crack extending from the edge to the crucial location defining exceeding a predetermined critical length;

a monitoring structure applied to the heat shield and comprising a radiofrequency resonant circuit, the radiofrequency resonant circuit further comprising an electrical conductor attached to the heat shield at a distance equal to the critical length from the edge of the heat shield; and

a monitoring device comprising an antenna adapted for remote wireless interrogation of the monitoring structure via electromagnetic radiofrequency excitation of the radiofrequency resonant circuit;

wherein a crack propagating from the edge of the heat shield toward the center of the heat shield exceeding the critical length will cause a crack in the electrical conductor, thereby changing a radiofrequency resonance of the radiofrequency resonant circuit that is remotely detectable by the monitoring device for identifying the heat shield as defective.

39. (previously presented) The assembly of claim 38, wherein the electrical conductor is formed in the shape of a ring around the center of the heat shield at the critical length distance from the edge, thereby enabling the monitoring structure to monitor an entire surface of the ceramic heat shield.

40. (cancelled).

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41. (previously presented) The assembly of claim 38, wherein the monitoring structure is applied to a surface of the heat shield that is not accessible in an installed state in a gas turbine engine.

42. (cancelled).

43. (currently amended) An assembly comprising:  
an electrical conductor applied to a surface of a component, the electrical conductor comprising a coil forming part of a radiofrequency resonant circuit and functioning as an antenna for receiving and responding to an electromagnetic-radiofrequency interrogation of the resonant circuit; and

a monitoring device comprising an antenna adapted for remotely conducting the electromagnetic-radiofrequency interrogation of the resonant circuit without a need for physical access to the component surface;

wherein a crack propagating across the surface of the component will cause a break in the electrical conductor, thereby changing a resonance of the radiofrequency resonant circuit in response to the electromagnetic-radiofrequency interrogation that is detectable by the monitoring device for identifying a degraded condition of the component.

44. (previously presented) The assembly of claim 43, wherein the electrical conductor is applied to the surface of the component generally parallel to a circumference of the surface so that an entire area of the surface is monitored for the degraded condition.